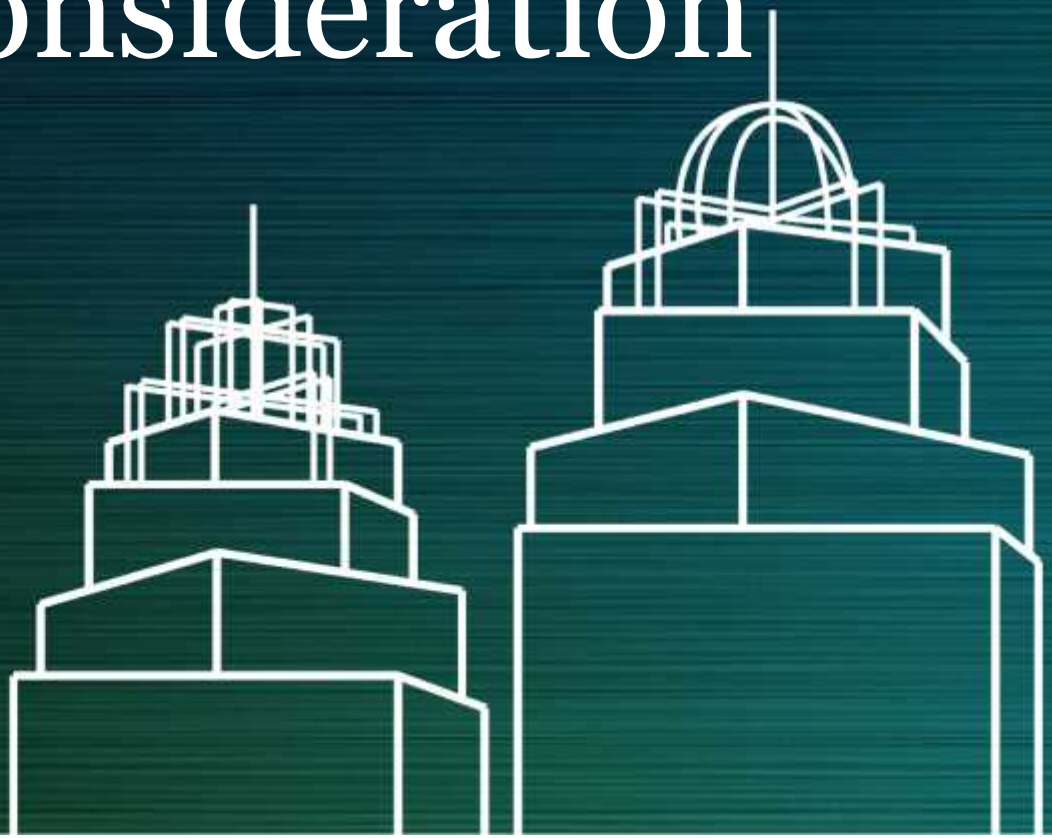
Lake Forrest Dam Summary of Design Alternatives Consideration

September 19, 2017

SANDY SPRINGS
GEORGIA



Background

- Dam is at least 60 years old
- 2009: Identified by Georgia DNR as Category I Dam (threat to life downstream)
  - EPD identified five (5) dam owners who are responsible for bringing the dam into compliance with the Georgia Safe Dams Program:
    - City of Atlanta
    - City of Sandy Springs
    - Three Lakes Corporation
    - Individual property owners in Atlanta and Sandy Springs
  - Municipal boundary between Atlanta and Sandy Springs splits the dam. Lake Forrest Drive crosses over the dam

Background Continued

- February 2012: Initial subsurface exploration performed
- May 2012: Preliminary Engineering Evaluation Report prepared
- May 2013: Monitoring wells installed to observe groundwater and seepage through the dam
- June 2015: Intergovernmental Agreement between City of Atlanta and City of Sandy Springs with the two cities sharing jointly in addressing improvements, repairs and/or alterations or other long-term options to bring dam into compliance
- 2015 into 2016: Emergency drawdown of water from main lake conducted to avoid potential breach of dam.
- August 2016 to present: Extensive preliminary engineering work done for design alternative analysis pursuant to EPD's demands and to prevent litigation.

Condition of the Dam

Condition of the Pipe

Condition of the Dam

Design Alternative Considerations

We reviewed various design alternatives prepared by the consultant. The review included considerations such as:

- Cost effectiveness
- Impacts
  - Environmental
  - Property
- Traffic
- Project timeline
- Overall safety considerations
- Regulatory requirements (federal, state and local)

As a result of these considerations, Sandy Springs staff recommends consideration for two design options to further evaluate and coordinate with all dam owners:

- Full pool alternative
- Reduced lake level alternative

Full Pool Alternative

- Description
  - Remediation of existing dam
  - Concrete weir spillway with box conduits under Lake Forrest Drive and chute outlet
  - **Normal pool set at same elevation as historic elevation (pre-lowering of lake level)**
- Temporary Impacts
  - Road closure & detour for duration of project
  - Construction staging and noise
  - Temporary construction easements may be required on surrounding properties
- Cost Estimate
  - Preliminary Cost Estimate: $7,027,000 to $7,622,000 (Assuming 18 month construction schedule)
- Other Considerations
  - Permanent easements or property acquisitions around dam
  - Annual maintenance costs of maintaining the dam integrity
  - Contributions from other dam owners (monetary or non-monetary)

Full Pool Alternative

Reduced Lake Level Alternative

- Description
  - Construction of new earthen dam immediately upstream of Lake Forrest Drive
  - Existing dam replaced with box culverts or bridge at Lake Forrest Drive
  - **Normal pool 12 feet lower than historic elevation**
- Temporary Impacts
  - Road closure & detour required for box culverts or bridge construction
  - Construction staging and noise
  - Temporary construction easements required within lake bed & downstream
- Cost Estimate
  - Preliminary Cost Estimate: $5,854,000 to $6,953,000 (Assuming 18 month construction schedule)
  - Costs will vary depending on whether bridge or culverts are constructed
- Other Considerations
  - Permanent easements required within lake bed - **Lake level to be permanently lowered**
  - Annual maintenance costs of maintaining the integrity of the dam
  - Ownership of new structures/facilities

Temporary Detour Options

Onsite Option

- Closure of Lake Forrest Drive at the project site during construction
- Construction of temporary bypass road immediately upstream of existing Lake Forrest Drive/Dam
- Two lane road, reduced speed limit creating changes to traffic flow and patterns
- Constructed on adjacent properties
- Removed after completion of dam/road repair
- Significant impacts to adjacent property owners
- $738,800 preliminary estimated construction cost
- Additional restoration costs associated with wetland disturbance within lake bed

Offsite Option

- Closure of Lake Forrest Drive at the project site during construction
- Re-routing/detouring of traffic around the project site utilizing existing roads
- Additional road user costs and traffic delays
- Traffic re-routed through residential areas
- $120,000 preliminary estimated cost

Scheduling & Timeline Estimates (Both Options)

Scheduling Options

- Construction work - 8 to 10 hours per day, 5 to 6 days per week
- Variance needed for additional work hours/days

Estimated Timeline

- Engineering Design and Permitting - 9 to 12 months
- Construction - 15 to 18 months

Option Summary

1. Full Pool Alternative – Preliminary cost estimate = $7,027,000 to $7,622,000
   - Normal pool set at same elevation as historic elevation
   - Higher cost if downstream properties are acquired
2. Reduced Lake Level Alternative – Preliminary cost estimate = $5,854,000 to $6,953,000
   - Normal pool 12’ lower than historic elevation
   - Costs will vary depending on whether bridge or culverts are constructed

Cost Estimates Notes: Preliminary engineering, permitting, and construction cost estimates were provided by the consultant. Cost of detour options listed are not included in the cost estimate developed for each alternative.

Creative Construction Techniques

Possible considerations to expedite construction of the selected design and/or mitigate impacts

- Modify design to reduce impacts to surrounding properties
- Fast track construction techniques
  - Utilize precast structures (culverts and bridge sections)
  - Pre-construct/selected staging (e.g. pre-tie rebar, strategically stage materials, etc.)
  - Extended work hours and work days
- Construct in phases to reduce road closure time
- Evaluate opportunities to improve construction staging and storage conditions
- Design-build procurement contract
- Design consultant and contractors collaborate during design to utilize the best techniques and methods to achieve the desired outcome

Note: Typical fast track construction techniques come at an added cost to the project that must be weighed against public inconvenience. Due to this work being conducted in a residential area, working around the clock seven days a week, 24 hours a day must be approved by the municipal governments.

Next Steps in Coordination

1. All five property dam representatives and DNR meet to provide a status update, discuss, and coordinate. Additionally, discuss roles and responsibilities of dam owners for permit to operate and maintain the dam per GA Safe Dams Program.
2. Provide Council an update of the five dam representative meeting with DNR
3. Five dam property owners coordinate on design options
4. Council provide direction for preferred design option
5. Public Information Open House (PIOH)
6. Provide Council and other four dam property owners with an update of the PIOH
7. Complete final design and permitting option to prepare for letting to construction
8. Procure construction contract and award to successful bidder

Questions